

REMARKS

By this Amendment, claims 1-3, 5, 10, 12, 15-16, 24-26, 31-39 have been amended. Claims 14 and 17 have been canceled. Claims 43-46 have been added. Accordingly, claims 1-13, 15, 16 and 18-46 presently are pending.

A corrected copy of Fig. 30 accompanies this response as required. Corrections have been made to the specification as required. The title has been amended.

Claims 1-30, 34, 38-40, and 42 stand rejected under 35 U.S.C. § 112, second paragraph on the basis of indefiniteness. The claims have been amended to address the Examiner's concerns, and are submitted to particularly point out and distinctly claim the subject matter of the invention.

Claims 1-9, 12, 17-23, 35-38, and 41 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Pat. No. 5,284, 748 to Mroczkowski et al. Claims 13-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mroczkowski et al. in view of JP 04-148669. Claims 31-33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mroczkowski et al. Applicants respectfully traverse the rejections.

The present invention as recited in amended claim 1 is a system for assaying one or more targets in a sample. The system includes an assay device having one or more assay sets, at least one for each target to be assayed. Each of the assay sets has at least two electrodes and a recognition moiety immobilized to one or more of the at least two electrodes. The recognition moiety is capable of specific binding to one of the targets. An electric or electronic module is provided for determining electric conductance between the at least two electrodes of each assay set. Reagents form a conducting substance over a complex formed between said recognition moiety and said target, which substance forms a conductive bridge between at least two of the electrodes of a set.

The present invention as recited in amended claim 31 is a kit for assaying targets in a sample. The kit includes an assay device having one or more assay sets, at least one for each target to be assayed. Each of the assay sets includes at least two electrodes and a

recognition moiety immobilized to one or more of the at least two electrodes. The recognition moiety is capable of specific binding to one of the targets. Reagents are capable of yielding a conductive bridge between at least two of the electrodes of a set.

The present invention as recited in amended claim 35 is an electronic device for determining one or more targets in a sample. The device includes an integrated circuit comprising a first group of N_1 conductors and a second group of N_2 conductors, defining between them $N_1 \times N_2$ junctions, each such junction being formed with an electronic module comprising two electrodes, each one linked to or defined as an integral portion of one of the conductors. A diode or non-linear component permits current flow through the electronic module only in the direction from the first group of conductors to the second group of conductors, whereby a current flowing between one conductor of the first group to one conductor of the second group of conductors defines a single junction point between them. Each pair of electrodes forms part of an assay set, each assay set having a recognition moiety for binding a target, bound to at least one of the electrodes.

The present invention as recited in amended claim 37 is an electric device for determining one or more targets in a sample. The device includes a microelectronic device having a plurality of layers, with a first group of conductors being defined as stripes in one or more first layers and a second group of conductors being defined as stripes in one or more second layers of the device. Each of the second layers is separated from a first layer by a non-conductive substance, electrodes of the device being formed as open ends of the conductors by openings or cut-outs in a vertical direction through the layers. Each pair of electrodes forms part of an assay set, each assay set having a recognition moiety for binding a target bound to at least one of the electrodes.

In contrast to the present invention as recited in amended independent claims 1, 31, 35, and 37, Mroczkowski et al. discloses a diagnostic element in which a layer of a biogenic substance is coated onto a non-conductive base between a pair of electrodes. Mroczkowski et al. does not teach or suggest two electrodes with a recognition moiety immobilized or bound to at least one of the electrodes, as recited in amended claims 1, 31, 35, and 37 of the present invention.

JP-04-148669 does not cure the deficiencies of Mroczkowski et al. JP-04-148669 has been cited as teaching the use of DNA as a base layer. The cited prior art, taken alone or in combination, does not teach or suggest two electrodes with a recognition moiety immobilized or bound to at least one of the electrodes.

The claims are submitted as being patentable over the cited references.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

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Respectfully submitted,

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